

Part II

Applications of Outlier Detection in Graph Data Mining

This part addresses some of the emerging applications of outlier detection principles in analyzing graph/network data. In particular, the idea is to detect various subgraphs of the input graph/network data that display deviating characteristics when compared to other parts of the input graph. Anomalous subgraphs of this kind are of great interest for analyzing various kinds of network data such as IP-based computer networks, biological networks, social interactions over the web, etc. With increasing number of real life applications dealing with network data, the anomaly detection task is becoming more significant. Accordingly, the kinds of challenges posed by these applications are also on the rise. To cope up with this ever increasing demand for developing innovative techniques to deal with varied application scenarios, it becomes imperative to continuously devise novel methods in a pragmatic manner.

In line with the above deliberations, some emerging application scenarios along with suitable techniques for anomaly detection are presented in this part. In specific, this part is divided into three contributory chapters discussing different algorithmic methods for analyzing both static and dynamic network applications.